Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for storing two-dimensional spatially organized data in one dimensional space on a computer storage medium, the method comprising:

mapping attributes of a continuous state planar space to a multi-resolutional tessellation of close packed uniform aperture three hexagonal cells, a location of each cell being represented by a centroid and a voronoi region created by the boundary with adjacent ~~parent~~ centroids forming a closed area for which properties of the cell are represented; and

uniquely identifying each cell with a sequential number including the identification of a parent cell, each parent cell at least partially encompassing a cluster of child cells in a spatial hierarchy, wherein relationships between parent cells and child cells are defined by the following rules:

each parent cell whose centroid is not the centroid for any lower resolution cells defines a location of a single new child cell of a next highest resolution;

each parent cell whose centroid is also the centroid for any lower resolution cells defines a location of multiple new child cells of the next highest resolution including one new child cell at the centroid of the parent cell and one new child cell located at each vertex of the parent's boundary edge; and

during initial conditions, a parent cell is assigned a general hexagon shape with a starting centroid location that can be considered a planar origin.

2. (Previously Presented) A method according to claim 1, wherein the sequential numbers of the cells at each resolution are clustered by parent and ordered according to one of the following methods: sequential ordering, z-curve

based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

3. (Previously Presented) A method according to claim 1, wherein the cells can be modified by one or more of the following procedures: including one or more extra cells, excluding one or more cells, bending, joining, stretching, rotating, scaling and translating.

4. (Previously Presented) A method according to claim 1, wherein the sequential numbers can be modified by one or more of the following procedures: adding one or more extra levels, deleting one or more existing levels, and introducing new unique index values.

5. (Previously Presented) A method according to claim 1, the method further comprising introducing a new cell at a unique location and a specific resolution wherein an ordering precedence of the new cell supercedes an ordering precedence of neighbor cells and a behavior of the new cell is a behavior of a parent cell whose centroid is also the centroid for lower resolution cells.

6. (Previously Presented) A method according to claim 1, the method further comprising introducing two or more new parent cells at unique locations and a specific resolution wherein the boundary of the two or more new parent cells share vertices, the vertices defining the location of one or more new child cells, each new child cell being uniquely indexed with reference to the two or more new parent cells, and a behavior of the one or more new child cells is a behavior of one of the two or more new parent cells whose centroid is not the centroid for any lower resolution cells.

7. (Currently Amended) A discrete global grid system comprising:

a processing unit,

a system memory, and

a system bus operatively coupling the system memory to the processing unit,

wherein the system memory comprises spatially organized data as a multi-resolutional tessellation of close-packed uniform aperture three hexagonal cells stored as a one-dimensional georeference having had each two-dimensional cell projected from the faces of a platonic solid to a geodesic spheroid, each spatial cell being uniquely identified with a sequential number that includes the identification of a parent cell, each parent cell at least partially encompassing a cluster of child cells in a spatial hierarchy, and

relationships between parent cells and child cells being defined by the following rules:

each parent cell whose centroid is not the centroid for any lower resolution cells defines a location of a single new child cell of a next highest resolution; and

each parent cell whose centroid is also the centroid for any lower resolution cells defines a location of multiple new child cells of the next highest resolution including one new child cell at the centroid of the parent cell and one new child cell located at each vertex of the parent's boundary edge.

8. (Previously Presented) A system according to claim 7, wherein the sequential numbers of the cells at each resolution are clustered by parent and ordered according to one of the following methods: sequential ordering, z-curve based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

9. (Previously Presented) A system according to claim 7, wherein the cells can be modified by one or more of the following procedures: including one or more extra cells, excluding one or more cells, bending, joining, stretching, rotating, scaling and translating.

10. (Previously Presented) A system according to claim 7, wherein the sequential numbers can be modified by one or more of the following procedures: adding one or more extra levels, deleting one or more existing levels, and introducing new unique index values.

11. (Previously Presented) A system according to claim 7, wherein a new cell may be introduced at a unique location and a specific resolution, an ordering precedence of the new cell supercedes an ordering precedence of neighbor cells and a behavior of the new cell is a behavior of a parent cell whose centroid location is also the centroid location for lower resolution cells.

12. (Previously Presented) A system according to claim 7, wherein two or more new parent cells may be introduced at unique locations and a specific resolution and wherein the boundary of the two or more new parent cells share vertices, the vertices defining the location of one or more new child cells, each new child cell being uniquely indexed with reference to the two or more new parent cells, and a behavior of the one or more new child cells is a behavior of one of the two or more new parent cells whose centroid location is not the centroid location for any lower resolution cells.

13. (Currently Amended) A system according to claim [[12]] 7, wherein shape, orientation and projection of the tessellation of close-packed uniform cells conform to a Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and division of the icosahedron surface begins with the introduction of one point on each icosahedron vertex, resulting in pentagonal shaped voronoi regions with shared cell vertices centered on each face of the icosahedron, further defining one second generation hexagonal cell at each of the shared cell vertices and one second generation pentagonal cell at each vertex of the icosahedron.

14. (Previously Presented) A system according to claim 7, the system further comprising a spatial data retrieval subsystem adapted to mathematically convert,

georeference and integrate spatial data, raster images, and topological georeferenced vectors to a gridded close-packed cell reference for storage.

15. (Previously Presented) A system according to claim 7, the system further comprising a digital globe visualization subsystem_adapted to return to a computer visualization device a representation of the spatially organized data associated with a spatial area and range of resolutions in the form of a rendered image of a geodesic globe.

16. (Previously Presented) A system according to claim 7, the system further comprising a spatial data discovery and file sharing tool adapted to allow data referenced to the tessellation of close-packed uniform cells to be advertised, shared and transmitted over a network in anyone of: a complete file transfer, a progressively transmitted transfer and a continuous state up dateable transfer.

17. (Previously Presented) A system according to claim 7, the system further comprising a spatial data browser adapted to identify on-line data referenced to a cell location as a result of a search query, to display at a set resolution, a pictographic symbol at the cell location on an image of a globe and to provide a means to select the symbol with a cursor, activating further software instructions.

18. (Previously Presented) A system according to claim 7, the system further comprising a spatial data analyzer comprising an overlapping gridded data structure which provides a framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

19. (Previously Presented) A system according to claim 16, the system further comprising a geospatial model building subsystem allowing spatial addressing and ordering to be used as a grid for construction of stochastic and deterministic simulation of dynamic earth events wherein users access on-demand in a peer-to-peer environment temporal geospatial data at each cell and extract and utilize the

temporal geospatial data in custom defined storage, routing and transformation routines and formulations.

20. (Previously Presented) A system according to claim 19, wherein the transformation routines include finite difference methods.

21. (Previously Presented) A system according to claim 19, wherein the transformations routines include cellular automata.

22. (Currently Amended) A method of storing two-dimensional data, the method comprising:

a) defining a hierarchical series of tessellations of uniform aperture three hexagonal cells, each tessellation having a resolution;

b) mapping one or more attributes from a continuous space to the cells of each tessellation;

c) assigning each cell in a lowest resolution tessellation a unique index comprising an identifying ~~sequence~~ value; and

d) assigning each cell not in the lowest resolution tessellation a unique hierarchical index comprising an index of a parent cell and an identifying ~~sequence~~ value,

wherein a parent cell of a particular cell is determined as follows:

if a centroid point of [[a]] the particular cell is located at a centroid point of a lower resolution cell contained in a tessellation of lower resolution than the tessellation containing the particular cell, the parent cell for the particular cell is the lower resolution cell; and

if a centroid point of [[a]] the particular cell is located on a vertex point of one or more lower resolution cells contained in a tessellation of lower resolution from the tessellation containing the particular cell, then the parent cell for the particular cell is ~~chosen by determining which of the one or more~~

a lower resolution cell[[s]] that has a centroid point which is a centroid point of a grandparent cell, the grandparent cell being a cell contained in a tessellation of one lower resolution than the ~~tessellation containing the one or more lower resolution cells~~ parent cell.

23. (Currently Amended) The method of claim [[1]] 22, wherein the identifying ~~sequence~~ value of each cell within a group of cells with a common parent cell is determined by one of the following methods: sequential ordering, z-curve-based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

24. (Currently Amended) The method of claim [[1]] 22, wherein the cells of each tessellation are modified by one or more of the following procedures: including one or more extra cells, excluding one or more existing cells, bending, joining, stretching, rotating, scaling and translating.

25. (Currently Amended) The method of claim [[1]] 22, the method further comprising laying the cells of each tessellation onto the faces of an icosahedron and projecting the data from the faces of the icosahedron to a geodesic spheroid.

26. (Previously Presented) The method of claim 25, wherein a shape, orientation, and projection of the series of hierarchical tessellations conforms to the Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and the method further comprises:

dividing the icosahedron surface by introducing one point on each icosahedron vertex, resulting in pentagonal shaped Voronoi regions with shared cell vertices centered on each face of the icosahedron, and then defining a second generation hexagonal cell at each of the shared cell vertices and a second generation pentagonal cell at each icosahedron vertex.

27. (Previously Presented) The method of claim 25, wherein the attributes comprise one or more of the following: mathematically converted georeference and integrate spatial data, raster images, and topological georeferenced vectors.

28. (Previously Presented) The method of claim 25, the method further comprising receiving selected feature geometry and attribute values and returning a representation of spatially organized data associated with a spatial area and range of resolutions as an image of a geodesic globe.

29. (Previously Presented) The method of claim 25, the method further comprising allowing the attributes of the cells to be advertised, shared and transmitted over a network using any one of the following methods: complete files transfer, progressively transmitted transfer and continuous state updateable transfer.

30. (Previously Presented) The method of claim 25, the method further comprising identifying on-line data referenced to a cell location as a result of a search query and displaying a pictographic symbol at the cell location on an image of a globe.

31. (Previously Presented) The method of claim 25, the method further comprising using the hierarchical series of tessellations as a framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

32. (Previously Presented) The method of claim 25, the method further comprising constructing stochastic and deterministic simulations of dynamic earth events from the hierarchical series of tessellations.

33. (Previously Presented) The method of claim 32, the method further comprising allowing users to extract and utilize data related to the dynamic earth events in storage, routing and transformation routines and formulations.

34. (Previously Presented) The method of claim 33, wherein the transformation routines include finite difference methods.

35. (Previously Presented) The method of claim 33, wherein the transformation routines include cellular automata.

36. (Currently Amended) A grid system, the system comprising

a processing unit;

a system memory storing a hierarchical series of tessellations of uniform aperture three hexagonal cells, each tessellation having a resolution and each cell having a unique index; and

a system bus operatively coupling the system memory to the processing unit,

wherein,

for each cell in the lowest resolution tessellation, the unique index comprises an identifying ~~sequence~~ value;

for each cell not in the lowest resolution tessellation, the unique hierarchical index comprises an index of a parent cell and an identifying ~~sequence~~ value; and

a parent cell of a particular cell is determined as follows:

if a centroid point of [[a]] the particular cell is located at a centroid point of a lower resolution cell contained in a tessellation of lower resolution than the tessellation containing the particular cell, the parent cell for the particular cell is the lower resolution cell,[[;]] and

if a centroid point of [[a]] the particular cell is located on a vertex point of one or more lower resolution cells contained in a tessellation of lower resolution from the tessellation containing the particular cell, then the parent cell for the particular cell is ~~chosen by determining which of the one or more~~ a lower resolution cell[[s]] that has a centroid point which is a centroid point of a grandparent cell, the grandparent cell being a cell contained in a tessellation of one lower resolution than the ~~tessellation containing the one or more lower resolution cells~~ parent cell.

37. (Previously Presented) The system of claim 36, wherein the identifying sequence of each cell within a group of cells with a common parent cell is determined by one of the following methods: sequential ordering, z-curve-based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

38. (Previously Presented) The system of claim 36, wherein the cells of each tessellation are modified by one or more of the following procedures: including one or more extra cells, excluding one or more existing cells, bending, joining, stretching, rotating, scaling and translating.

39. (Previously Presented) The system of claim 36, the cells of each tessellation are laid onto the faces of a icosahedron and the data is projected from the faces of the icosahedron to a geodesic spheroid.

40. (Previously Presented) The system of claim 39, wherein a shape, orientation, and projection of the series of hierarchical tessellations conforms to a Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and the icosahedron surface is divided by introducing one point on each icosahedron vertex, resulting in pentagonal shaped Voronoi regions with shared cell vertices centered on each face of the icosahedron,

and then defining a second generation hexagonal cell at each of the shared cell vertices and a second generation pentagonal cell at each icosahedron vertex.

41. (Previously Presented) The system of claim 39, wherein the attributes comprise one or more of the following: mathematically converted georeference and integrate spatial data, raster images, and topological georeferenced vectors.

42. (Previously Presented) The system of claim 39, wherein the processing unit is adapted to receive selected feature geometry and attribute values and return a representation of spatially organized data associated with a spatial area and range of resolutions as an image of a geodesic globe.

43. (Previously Presented) The system of claim 39, wherein the attributes of the cells are advertised, shared and transmitted over a network using any one of the following systems: complete files transfer, progressively transmitted transfer and continuous state updateable transfer.

44. (Previously Presented) The system of claim 39, wherein the processing unit is adapted to receive a search query, reference on-line data to a cell location as a result of the search query and display a pictographic symbol at the cell location on an image of a globe.

45. (Previously Presented) The system of claim 39, wherein the hierarchical series of tessellations provides framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

46. (Previously Presented) The system of claim 39, wherein the hierarchical series of tessellations are used for the construction of stochastic and deterministic simulations of dynamic earth events.

47. (Previously Presented) The system of claim 46, wherein one or more users can extract and utilize data related to the dynamic earth events in storage, routing and transformation routines and formulations.

48. (Previously Presented) The system of claim 47, wherein the transformation routines include finite difference methods.

49. (Previously Presented) The system of claim 47, wherein the transformation routines include cellular automata.

50. (New) The method of claim 1, the method further comprising laying the cells of each tessellation onto the faces of an icosahedron and projecting the data from the faces of the icosahedron to a geodesic spheroid.

51. (New) The method of claim 50, wherein a shape, orientation, and projection of the series of hierarchical tessellations conforms to the Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid.